R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

The July 31, 2002 Office Action and the Examiner's comments have been carefully considered. In response, claims are amended, and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

PRIOR ART REJECTIONS AND CLAIM OBJECTIONS

In the Office Action, claims 1-3 are rejected under 35 USC 103 as being unpatentable over JP 9-13172 (Susumu) in view of JP 8-18083 (Taira et al.). Claims 5-8 are rejected under 35 USC 103 as being unpatentable over JP 4-370921 (Komura) in view of JP 5-326676 (Akihiro).

The Examiner's indication that claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims is acknowledge and appreciated.

In response, claim 4 is rewritten in independent form to include all of the limitations of claims 3 and 1. Therefore,

claim 4 is in form for immediate allowance, which action is earnestly solicited.

Claim 1 is amended to include subject matter from claim 4 which is not disclosed, taught or suggested in the cited references. Specifically, claim 1 is amended to recite "a resilient mechanism made from at least one of quartz or SiC for supporting said support pins". Claim 3 is amended to recite that the resilient mechanism includes a plurality of flexible members, claim 5 is amended to recite that the holding members include resilient means made from at least one of quartz or SiC, claim 7 is amended to recite "quartz spring means" and claim 8 is amended to recite that the holding means includes "spring means made from at least one of quartz or SiC". Support for the added limitations can be found in the present application at, *inter alia*, page 8, lines 20-21; page 10, lines 11-13; page 12, lines 3-4; page 13, lines 24-25; page 15, lines 13-16; page 18, lines 24-29; page 20, lines 12-14; page 21, lines 27-29; page 24, lines 4-7; page 24, line 28 to page 25, line 4.

In the wafer holding device of the present claimed invention, the resilient mechanism for supporting the support pins (claims 1-4) as well as the resilient means of the holding member (claims 5-8) should be made resilient so that the wafer can be uniformly and safely supported by all of the support pins

of all of the holding members during the performance of the heat treatment of the wafer at 1000°C or higher (see page 8, line 29 to page 9, line 12; and page 10, lines 14-26 of the present application). This can be achieved by use of the resilient means being made of at least one of quartz or SiC as explained in the present application.

None of the cited references disclose, teach or suggest the use of a quartz spring which is maintained in resilient condition during the performance of high temperature heat treatment of the wafer as recited in claims 1-8.

In view of the foregoing, claims 1-8 are patentable over the cited references under 35 USC 102 as well as 35 USC 103.

CLAIM FEE

The application was originally filed with 8 claims, of which 2 were independent. The application now contains 8 claims, of which 4 are independent. Accordingly, a claim fee in the amount of $84.00 for the addition of 1 extra independent claim is attached hereto. In addition, authorization is hereby given to charge any additional fees which may be determined to be required to Account No. 06-1378.

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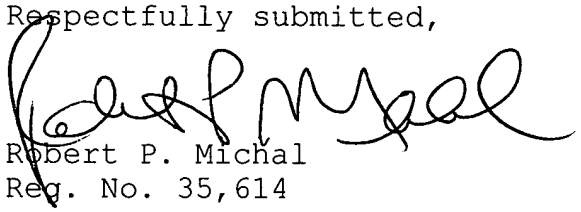
Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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Enc.: Copy of amended claims 1-8 showing the changes made thereto.
Petition for three months extension of time (Check #90505 for $930).
Check #90506 for $84 for one additional independent claim.

COPY OF AMENDED CLAIMS SHOWING CHANGES BEING MADE
SERIAL NO. 09/554,629

Claims 1-8 have been amended as follows:

1. (Amended) A wafer holding device adapted for use in an apparatus for treating a principal surface of a semiconductor wafer under a predetermined heating condition while the back surface of said principal surface of the wafer is held by the device at a predetermined position within a chamber of said apparatus, said device comprising:

a susceptor formed in the surface thereof with a wafer loading area for supporting the back surface of the wafer, [and]

a plurality of support pins each arranged at one of four equiangularly spaced positions along a circumference of at least one concentric circle in said wafer loading area so as to protrude from the surface of said susceptor, [each of said support pins including a resilient mechanism] and

a resilient mechanism made from at least one of quartz or SiC for supporting said support pins.

2. (Amended) The wafer holding device according to claim 1, wherein said support pins are disposed in [the] positions which support the wafer along the crystal orientation ⟨110⟩ with respect to the crystal plane (100) of the wafer.

3. (Amended) The wafer holding device according to claim 1, wherein said resilient mechanism includes a plurality of flexible members made from at least one of quartz or SiC each supporting one of said support pins.

4. (Amended) [The] A wafer holding device [according to claim 3,] adapted for use in an apparatus for treating a principal surface of a semiconductor wafer under a predetermined heating condition while the back surface of said principal surface of the wafer is held by the device at a predetermined position within a chamber of said apparatus, said device comprising:

a susceptor formed in the surface thereof with a wafer loading area for supporting the back surface of the wafer, and

a plurality of support pins each arranged at one of four equiangularly spaced positions along a circumference of at least one concentric circle in said wafer loading area so as to protrude from the surface of said susceptor, each of said support pins including a resilient mechanism, wherein said resilient mechanism includes a plurality of flexible members each supporting one of said support pins,

wherein each said flexible member comprises a leaf spring made from at least one of quartz or SiC.

5. (Twice Amended) A wafer holding device adapted for [us] use in an apparatus for treating a principal surface of a semiconductor wafer under a predetermined heating condition while the back surface of said principal surface of the wafer is vertically or obliquely held by the device at a predetermined position within a chamber of said apparatus, said device comprising:

a substrate holder for supporting the back surface of said wafer thereon,

[a] rotating means for circumferentially rotating said wafer along with the substrate holder, and

a plurality of holding members provided on said substrate holder and placed in contact with the peripheral edge of said wafer loaded thereon, said holding members including resilient means made from at least one of quartz or SiC and being adapted to act against said peripheral edge of said wafer to exert a holding force toward the center of said wafer in such degree that said wafer is prevented from coming off when said wafer is rotated along said substrate holder by said rotating means.

6. (Amended) The wafer holding device according to claim 5, wherein said substrate holder includes an inner wall surface disposed to face the peripheral edge of said wafer loaded on said substrate holder, and wherein said holding means includes a

plurality of contact members for contacting with the peripheral edge of said wafer and a plurality of [energizing] quartz spring members disposed on said inner wall surface to apply an energizing force tending toward a center of said wafer to said contact members.

7. (Amended) The wafer holding device according to claim 5, wherein said substrate holder includes an inner wall surface disposed to face the peripheral edge of said wafer loaded on said substrate holder, and wherein said holding means includes inner-wall contact means including a part or a whole of a plurality of sections forming said inner wall surface and [energizing] quartz spring means for energizing said inner-wall contact means toward a center of said wafer.

8. (Amended) [The] A wafer holding device [according to claim 5,] adapted for use in an apparatus for treating a principal surface of a semiconductor wafer under a predetermined heating condition while the back surface of said principal surface of the wafer is vertically or obliquely held by the device at a predetermined position within a chamber of said apparatus, said device comprising:

a substrate holder for supporting the back surface of said wafer thereon; and

rotating means for circumferentially rotating said wafer along with the substrate holder,

wherein said substrate holder includes periphery contact means for contacting with at least a portion of the back surface at the peripheral edge of said wafer loaded on said substrate holder,

and wherein said holding means includes [clamping means] spring means made from at least one of quartz or SiC for contacting with a portion of the principal surface at the peripheral edge of said wafer loaded on said substrate holder and for clamping and holding said wafer between the same and said periphery contact means.